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AN ATLAS OF PURE WATER VAPOR SPECTRA FROM 500 TO  
5000/CN VOLUME 2. (U) OHIO STATE UNIV COLUMBUS  
ELECTROSCIENCE LAB R K LONG ET AL. SEP 84

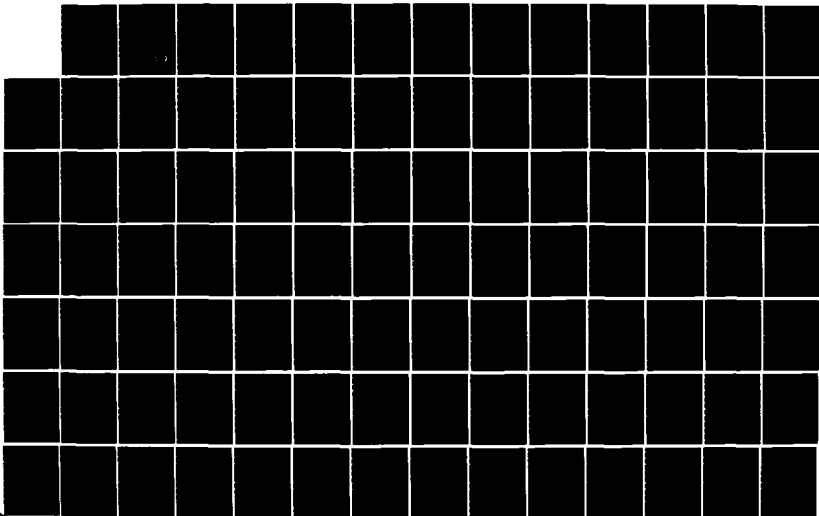
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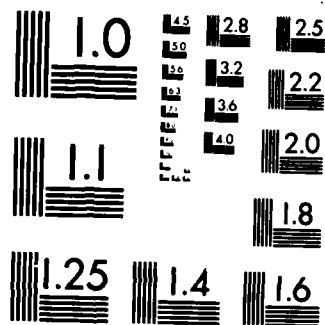
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The Ohio State University

AN ATLAS OF PURE WATER VAPOR SPECTRA  
FROM 500 TO 5000  $\text{cm}^{-1}$

R.K. Long  
E.K. Damon

The Ohio State University

**ElectroScience Laboratory**

Department of Electrical Engineering  
Columbus, Ohio 43212

September 1984

Technical Report 713774-3

Contract DAAG29-81-K-0084

VOLUME II

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19. KEY WORDS (Continue on reverse side if necessary and identify by block number)			
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) <p>→ An Atlas of the pure H<sub>2</sub>O absorption spectrum between 500 and 5000 cm<sup>-1</sup> is presented. For each frequency, four spectra are presented, from top to bottom: 5 Torr @ 284 k; 10 Torr @ 294.3 k; 20 Torr @ 308 k; and 40 Torr @ 320 k. The path length is 821 meters. Tables of approximate line frequencies are also included.</p>			

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1. The first part of the document is a letter from the President of the United States to the Congress, dated January 1, 1862. It is a very important document, as it contains the President's annual message to Congress. The letter is written in a formal, dignified style, and it is one of the most important documents in the history of the United States.

2. The second part of the document is a letter from the President of the United States to the Congress, dated January 1, 1862. It is a very important document, as it contains the President's annual message to Congress. The letter is written in a formal, dignified style, and it is one of the most important documents in the history of the United States.

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4. The fourth part of the document is a letter from the President of the United States to the Congress, dated January 1, 1862. It is a very important document, as it contains the President's annual message to Congress. The letter is written in a formal, dignified style, and it is one of the most important documents in the history of the United States.

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AD-A151 757

AN ATLAS OF PURE WATER VAPOR SPECTRA FROM 500 TO

2/5

5000/CM VOLUME 2. (U) OHIO STATE UNIV COLUMBUS

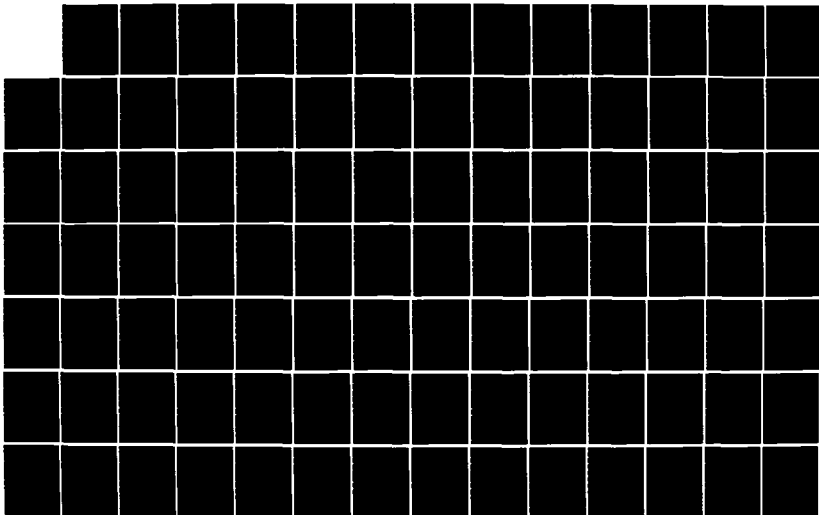
ELECTROSCIENCE LAB R K LONG ET AL. SEP 84

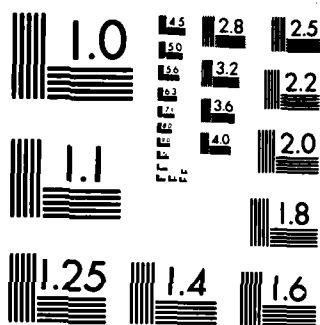
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NL





MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS-1963-A



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1701.978  
1702.302  
1702.400  
1702.803  
5 1703.442  
1703.687  
1703.955  
1704.860  
1705.824  
10 1707.281  
1708.274  
1708.791  
1709.653  
1710.084  
15 1710.177

B  
1707.790  
1708.317  
1708.805  
1710.194

C  
1710.203

D  
1710.215

H		B		C		D	
5	1710.780	1710.777	1720.200	1720.216			
	1711.523	1711.529					
	1711.638	1712.077					
	1712.045	1720.238					
	1712.494						
10	1712.895						
	1713.672						
	1715.895						
	1719.150						
	1719.764						
	1720.060						
	1720.154						

A	B	C	D
1720.060	1721.566		1730.202
1721.502	1722.541		
1721.558	1722.633		
1722.540	1723.912		
5 1722.649	1724.285		
1723.049	1724.484		
1723.109	1724.802		
1723.421	1724.919		
1723.593	1725.192		
10 1724.186	1725.376		
1724.805	1725.520		
1724.925	1726.212		
1725.005	1726.363		
1725.202	1726.805		
15 1725.377	1727.295		
1725.520	1727.419		
1726.217	1727.763		
1726.395	1727.836		
20 1726.730	1728.286		
1727.299	1730.240		
1727.413			
1727.764			
1727.837			
25 1728.286			
1729.435			
1730.093			

A  
1730.640  
1731.040  
1731.474  
1732.013  
5 1732.310  
1735.363  
1735.851  
1736.330  
1737.015  
10 1737.527  
1737.960  
1738.382  
1738.497  
1738.664  
15 1740.175

B  
1740.146

C  
1740.266

D  
1740.245

	A	B	C	D
	1740.654	1741.959		1750.191
	1740.859	1742.119		
	1741.002	1744.765	1750.178	
	1741.120	1750.143		
5	1741.455			
	1742.134			
	1742.475			
	1743.892			
	1744.290			
10	1744.508			
	1745.723			
	1746.322			
	1746.970			
	1747.235			
15	1747.895			
	1749.485			
	1750.095			



A

1750.365  
1751.880  
1752.780  
1753.392  
5 1753.603  
1753.822  
1754.120  
1754.428  
10 1755.696  
1756.159  
1757.148  
1757.599  
1758.336  
1758.594  
15 1759.320  
1760.246

B

1752.987  
1753.388  
1753.597  
1753.843  
5 1754.114  
1754.417  
1757.575  
1758.723  
10 1759.317  
1760.059

C

1760.200

D

1760.165

D  
1770.208

C  
1770.223

B  
1762.700  
1763.234  
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1764.596  
1764.698  
1765.365  
1765.802  
10 1766.729  
1767.124  
1770.121

A  
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1762.680  
5 1763.241  
1764.151  
1764.341  
1764.522  
1764.600  
10 1764.708  
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1766.793  
1767.095  
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15 1768.354  
1769.525  
1769.894

A

1770.386  
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5 1775.052  
1775.771  
1776.353  
1776.763  
1777.137  
10 1777.457  
1777.669  
1777.740  
1777.887  
1778.080  
15 1778.424  
1778.539  
1778.766  
1779.066  
1779.922

B

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1776.755  
1777.132  
5 1777.449  
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1777.883  
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1778.396  
10 1778.525  
1778.757  
1779.020  
1779.908

C

1780.176

D

1780.148

A

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5 1782.698  
1783.187  
1783.857  
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10 1785.082  
1785.566  
1785.810  
1785.889  
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15 1786.701  
1786.844  
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1787.346  
20 1788.034  
1788.360  
1789.617  
1789.880  
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B

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5 1783.181  
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1785.557  
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10 1785.877  
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1786.837  
1787.340  
15 1788.026  
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1789.884  
1790.005

C

1790.259

D

1790.243

D  
1800.238

C  
1800.206

B  
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1795.367  
5 1796.473  
1796.580  
1796.892  
1797.014  
10 1797.479  
1798.131  
1798.571  
1800.065

A  
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1794.057  
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1795.375  
1795.751  
1796.301  
1796.478  
10 1796.595  
1796.938  
1797.487  
1798.137  
15 1798.593  
1798.812  
1798.972  
1799.410  
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A  
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 1803.794  
 10 1804.614  
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 1805.176  
 1805.340  
 15 1805.750  
 1805.909  
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 1806.900  
 20 1807.640  
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B  
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 1805.120  
 1805.322  
 1805.748  
 1805.906  
 10 1806.571  
 1807.056  
 1807.625  
 1807.830  
 1808.373  
 15 1808.649  
 1809.290  
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C  
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 1808.695  
 5 1809.262  
 1810.205

D  
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A

1810.129  
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5 1812.333  
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1813.034  
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1813.381  
10 1813.589  
1814.19  
1815.457  
1815.525  
15 1816.003  
1817.146  
1817.413  
1817.477  
20 1817.676  
1818.900  
1820.162

B

1811.142  
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1812.879  
5 1813.047  
1813.228  
1813.377  
1813.584  
1814.712  
10 1814.946  
1815.452  
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1816.057  
1816.658  
15 1817.148  
1817.667  
1818.894  
1820.159

C

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1815.454  
1815.572  
10 1816.062  
1816.551  
1816.660  
1818.199  
1818.897  
1820.158

D

1812.622  
1820.187

A

1820.370  
1820.823  
1821.382  
1821.841  
5 1822.099  
1822.429  
1822.788  
1825.523  
1825.742  
10 1825.898  
1825.976  
1826.251  
1827.535  
1827.902  
15 1828.212  
1828.537  
1829.142  
1830.164

B

1820.365  
1820.821  
1821.343  
1821.829  
5 1822.091  
1822.423  
1822.811  
1825.968  
1827.897  
10 1828.205  
1830.182

C

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1820.822  
1821.411  
1821.871  
5 1822.073  
1830.133

D

1830.191



A

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1966.214  
1967.364  
1968.168  
10 1969.233  
1969.376  
1969.555  
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1970.043

B

1960.702  
1961.129  
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5 1963.185  
1964.163  
1965.421  
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10 1967.596  
1968.164  
1969.229  
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15 1969.552  
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5 1963.191  
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10 1968.167  
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15 1970.038

D

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1969.369  
10 1969.546  
1969.762

A  
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 5 1951.124  
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 1954.401  
 10 1954.971  
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 15 1956.230  
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 1956.637  
 1956.720  
 1956.805  
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 1957.145  
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 25 1960.194

B  
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C  
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 15 1955.814  
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D  
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 10 1954.397  
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 15 1956.574  
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 20 1958.093  
 1958.604  
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A  
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 1941.332  
 1941.620  
 1941.747  
 1941.830  
 1941.901  
 1942.497  
 1942.802  
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 1944.064  
 1944.189  
 1944.747  
 1945.317  
 1945.600  
 1946.329  
 1947.401  
 1949.246  
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 1950.101  
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5  
 10  
 15  
 20

B  
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 1941.334  
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 1944.446  
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 1945.244  
 1945.656  
 1946.270  
 1946.397  
 1947.081  
 1947.396  
 1949.240  
 1949.423  
 1949.798  
 1950.097  
 1950.217

5  
 10  
 15  
 20

C  
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 1947.085  
 1947.266  
 1947.403  
 1948.515  
 1949.248  
 1949.427  
 1949.806  
 1950.104  
 1950.224

5  
 10  
 15

D  
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 1943.462  
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 1946.490  
 1947.387  
 1948.395  
 1948.500  
 1948.189  
 1949.413  
 1949.794  
 1950.096  
 1950.212

5  
 10

A

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1932.193  
5 1932.252  
1932.387  
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1932.827  
10 1933.168  
1933.349  
1934.390  
1934.513  
1935.323  
15 1935.676  
1935.837  
1936.676  
1937.010  
1937.218  
20 1937.351  
1937.462  
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25 1939.121  
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B

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5 1932.381  
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1939.758

C

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25 1938.698  
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1939.610

D

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10 1933.536  
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1934.506  
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1935.478  
15 1935.664  
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1936.205  
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20 1937.180  
1937.449  
1937.912  
1938.138  
1938.371  
25 1938.689  
1939.098  
1939.603

A  
 1920.708  
 1920.898  
 1921.593  
 1922.260  
 5 1923.265  
 1924.731  
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 10 1925.202  
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 15 1926.802  
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 1927.673  
 1927.854  
 20 1927.943  
 1929.026  
 1929.701  
 1930.204

B  
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 1920.894  
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 5 1923.382  
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 10 1927.273  
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 15 1929.698  
 1930.202

C  
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 15 1929.707  
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 1930.052  
 1930.203

D  
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 10 1927.674  
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A

1911.865  
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1914.222  
1914.577  
1914.986  
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1915.351  
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1915.767  
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1916.796  
1918.161  
1918.855  
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1919.684  
1920.131

5

10

15

20

B

1910.109  
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1915.186  
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1915.766  
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1918.374  
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5

10

15

20

C

1910.301  
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1915.190  
1915.261  
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1915.768  
1916.679  
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1920.072

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10

15

20

D

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1913.286  
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1914.214  
1914.576  
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1915.551  
1920.136

5

10

A

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1900.517  
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1901.756  
5 1902.039  
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1903.124  
1903.647  
1903.980  
10 1904.326  
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15 1906.730  
1907.697  
1907.932  
1907.990  
20 1909.127  
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1909.981

B

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5 1902.036  
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10 1904.349  
1904.753  
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15 1906.730  
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20 1909.801  
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C

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15 1906.143  
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1907.063  
1908.265  
1909.130  
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D

1900.066  
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5 1901.704  
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10 1903.970  
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1906.057  
1906.130  
15 1906.727  
1910.184

A	B	C	D
1890.214	1891.547	1891.553	1891.993
1890.719	1891.993	1891.900	1892.631
1891.558	1892.594	1891.995	1896.992
1891.637	1893.419	1892.564	1897.329
5 1891.997	5 1893.704	5 1893.429	5 1897.839
1891.602	1894.355	1893.685	1898.662
1893.430	1894.668	1894.356	1899.346
1893.723	1895.507	1895.749	1900.072
1893.869	1895.737	1896.995	1900.230
10 1893.162	10 1896.991	10 1897.368	
1894.367	1897.367	1897.529	
1894.678	1897.518	1897.655	
1895.132	1897.850	1898.670	
1895.253	1898.662	1899.355	
15 1895.516	15 1899.348	15 1900.077	
1895.749	1900.073	1900.224	
1896.992	1900.243		
1897.380			
1897.529			
20 1897.862			
1898.675			
1899.351			
1900.081			
1900.169			



A

1880.982  
1881.482  
1882.126  
1883.405  
5 1884.563  
1885.029  
1886.206  
1887.522  
10 1888.259  
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1890.737  
1891.214

B

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1887.279  
10 1888.766  
1889.451  
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1892.203

C

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5 1882.522  
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10 1885.391  
1885.773  
1887.530  
1890.166

D

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5 1882.900  
1885.790  
1890.181

A  
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1879.304  
1879.606  
1879.790  
1880.213

B  
5  
1870.910  
1871.631  
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1875.243  
1875.459  
1876.617  
1877.774  
1879.016  
1879.290  
10 1879.595  
1879.782  
1880.204

C  
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1871.632  
1871.892  
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1875.814  
1876.083  
1876.241  
10 1876.579  
1876.681  
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1878.676  
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1879.235  
15 1879.582  
1879.808  
1880.213

D  
5  
1871.175  
1874.784  
1875.458  
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1875.725  
1876.565  
1877.773  
1878.653  
1879.747  
10 1880.241

A

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1861.537  
1861.921  
1862.200  
1862.792  
1863.956  
1864.052  
1864.178  
1864.334  
1864.428  
1866.319  
1866.428  
1867.110  
1868.727  
1869.503

5

10

B

1860.905  
1861.492  
1861.916  
1862.194  
1862.782  
1862.949  
1863.681  
1864.052  
1864.168  
1864.329  
1865.147  
1866.323  
1869.993

5

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AD-A151 757

AN ATLAS OF PURE WATER VAPOR SPECTRA FROM 500 TO

3/5

5000/CN VOLUME 2. (U) OHIO STATE UNIV COLUMBUS

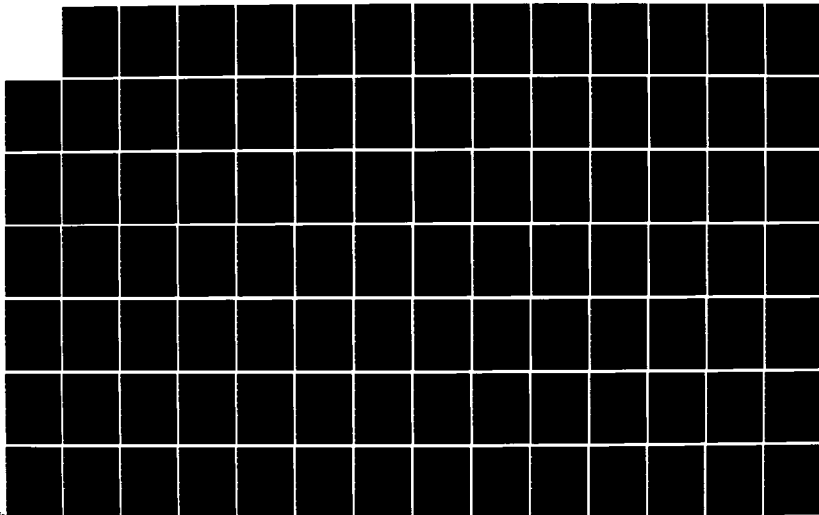
ELECTROSCIENCE LAB R K LONG ET AL. SEP 84

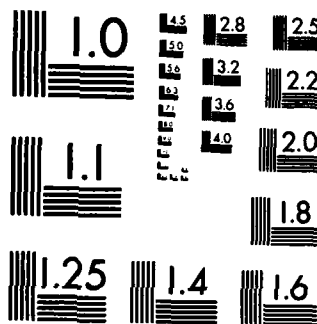
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NL





MICROCOPY RESOLUTION TEST CHART  
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AD-A151 757

AN ATLAS OF PURE WATER VAPOR SPECTRA FROM 500 TO  
5000/CN VOLUME 2. (U) OHIO STATE UNIV COLUMBUS  
ELECTROSCIENCE LAB R K LONG ET AL. SEP 84

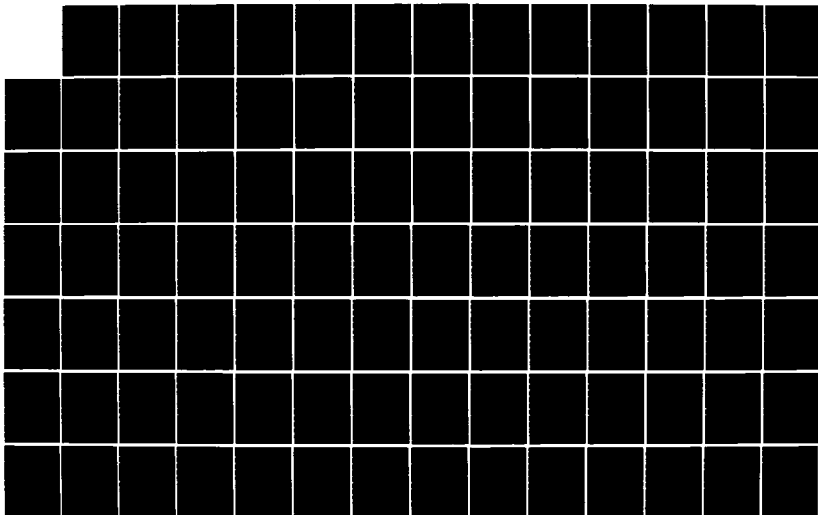
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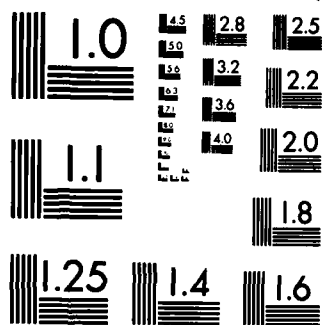
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NL





MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS-1963-A

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AN ATLAS OF PURE WATER VAPOR SPECTRA FROM 500 TO  
5000/CN VOLUME 2. (U) OHIO STATE UNIV COLUMBUS  
ELECTROSCIENCE LAB R K LONG ET AL. SEP 84

5/5

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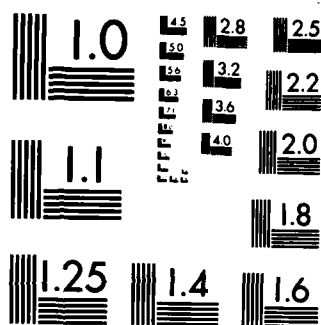
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NL

END

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DTIC



MICROCOPY RESOLUTION TEST CHART  
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